

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-101. (Canceled).

102. (New) An isolated nitrile hydratase comprising an α -subunit and a β -subunit, wherein said α -subunit is a variant of the peptide of SEQ ID NO: 1, wherein the amino acid sequence of said variant of the peptide of SEQ ID NO: 1 is substituted at positions 36th to Met, or 71st to His, or 148th to Asp, or 204th to Arg, Lys, Trp or Thr, or 148th and 204th to Asp and Arg respectively, or 36th, 148th and 204th to Met, Asp and Arg respectively.

103. (New) The nitrile hydratase according to claim 102, wherein the α -subunit which is substituted amino acid at position 36th to Met, is further substituted amino acid at position 126th to Tyr, or the α -subunit which is substituted amino acid at position 36th to Met, is further substituted amino acid at positions 6th and 126th to Thr and Tyr respectively, or the α -subunit which is substituted amino acid at position 71st to His, is further substituted amino acid of positions 19th and 126th to Val and Tyr respectively.

104. (New) The nitrile hydratase according to claim 102, wherein the β -subunit has the amino acid sequence of SEQ ID NO: 2.

105. (New) The nitrile hydratase according to claim 103, wherein the β -subunit is the amino acid sequence of SEQ ID NO: 2.

106. (New) The nitrile hydratase according to claim 102, wherein the β -subunit is a variant of the peptide of SEQ ID NO: 2, wherein the α -subunit is substituted amino acid at positions 36th, 148th and 204th of SEQ ID NO: 1 to Met, Asp and Arg respectively, and the β -subunit is substituted amino acid at positions 41st, 51st and 108th of SEQ ID NO: 2 to Ile, Val, and Asp respectively.

107. (New) The nitrile hydratase according to claim 103, wherein the β -subunit is a variant of the peptide of SEQ ID NO: 2, wherein the α -subunit is substituted amino acid at positions 6th, 36th and 126th of SEQ ID NO: 1 to Thr, Met and Tyr respectively, and the β -subunit is substituted amino acid at positions 10th, 118th and 200th of SEQ ID NO: 2 to Asp, Val and Glu respectively, or the α -subunit is substituted amino acid at positions 19th, 71st and 126th of SEQ ID NO: 1 to Val, His and Tyr respectively, and the β -subunit is substituted amino acid at positions 37th, 108th and 200th of SEQ ID NO: 2 to Leu, Asp and Glu respectively, or the α -subunit is substituted amino acid at positions 19th, 71st and 126th of SEQ ID NO: 1 to Val, His and Tyr respectively, and the β -subunit is substituted amino acid at positions 37th, 108th and 200th of SEQ ID NO: 2 to Val, Asp and Glu respectively.

108. (New) The nitrile hydratase according to claim 102, wherein the α -subunit is substituted amino acid at positions 148th and 204th of SEQ ID NO: 1 to Asp and Arg respectively, and the β -subunit is substituted amino acid at positions 108th and 200th of SEQ ID NO: 2 to Asp and Glu respectively.

109. (New) An isolated nitrile hydratase comprising an α -subunit and a β -subunit, wherein the β -subunit is a variant of the peptide of SEQ ID NO: 2, wherein said amino acid of variant of the SEQ ID NO: 2 is substituted at positions
10th to Asp, Glu, Trp, Gly, Tyr or Cys, or
32nd to Gly, or
37th to Thr, Ala, Leu, Ile or Val, or
41st to Glu, Thr, Ala, Leu Ile, or val, or 46th to Gly, Tyr, Leu, Lys or Asp, or 48th to Gly, Ala, Val, Ser, Thr or Arg, or 51st to Ala or Val, or
72nd to Phe, or
118th to Ala, Leu, Ile or Val, or 127th to Ala, Val or Ser, or

146th to Gly, or
160th to Leu or Trp, or
186th to Glu, Asp, Lys, Arg, Asn, Ser or Gly or
217th to Gly, or
160th and 186th to Trp and Arg respectively, or
127th, 160th and 186th to Ser, Trp and Arg respectively.

110. (New) The nitrile hydratase according to claim 109, wherein the β -subunit which is substituted amino acid at position 51st to Val, is further substituted amino acid at position 108th to Asp, or
the β -subunit which is substituted amino acid at position 118th to Val, is further substituted amino acid at positions 200th to Glu, or
the β -subunit which is substituted amino acid at position 10th to Asp, is further substituted amino acid at positions 118th and 200th to Val and Glu respectively, or
the β -subunit which is substituted amino acid at position 37th to Leu, is further substituted amino acid at positions 108th and 200th to Asp and Glu respectively, or
the β -subunit which is substituted amino acid at position 37th to Val, is further substituted amino acid at positions 108th and 200th to Asp and Glu respectively, or
the β -subunit which is substituted amino acid at position 41st to Ile, is further substituted amino acid at positions 51st and 108th to Val and Asp respectively, or
the β -subunit which is substituted amino acid at position 46th to Lys, is further substituted amino acid at positions 108th and 212th to Arg and Tyr respectively, or
the β -subunit which is substituted amino acid at position 48th to Val, is further substituted amino acid at positions 108th and 212th to Arg and Tyr respectively.

111. (New) The nitrile hydratase according to claim 109, wherein the α -subunit has the amino acid sequence of SEQ ID NO: 1.

112. (New) The nitrile hydratase according to claim 110, wherein the α -subunit has the amino acid sequence of SEQ ID NO: 1.

113. (New) An isolated nitrile hydratase comprising an α -subunit and a β -subunit, wherein the α -subunit is a variant of the peptide of SEQ ID NO: 1, wherein the β -subunit is a variant of the peptide of SEQ ID NO: 2, wherein amino acid of the α -subunit is substituted at positions 6th, 19th and 126th of SEQ ID NO: 1 to Thr, Val and Tyr respectively, and amino acid of the β -subunit is substituted at positions 46th, 108th and 212th of SEQ ID NO: 2 to Lys, Arg and Tyr respectively, or amino acid of the α -subunit is substituted at positions 6th, 19th and 126th of SEQ ID NO: 1 to Thr, Val and Tyr respectively, and amino acid of the β -subunit is substituted at positions 48th, 108th and 212th of SEQ ID NO: 2 to Val, Arg and Tyr respectively, or amino acid of the α -subunit is substituted at positions 6th, 19th and 126th of SEQ ID NO: 1 to Ala, Val and Tyr respectively, and amino acid of the β -subunit is substituted at positions 127th, 160th and 186th of SEQ ID NO: 2 to Ser, Trp and Arg respectively.

114. (New) An isolated host cell comprising the nitrile hydratase of claim 102.

115. (New) An isolated host cell comprising the nitrile hydratase of claim 109.

116. (New) An isolated host cell comprising the nitrile hydratase of claim 113.